

Notice of Allowability

Application No.

10/615,163

Examiner

Andrew Schechter

Applicant(s)

DATE ET AL.

Art Unit

2871

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address--

All claims being allowable, PROSECUTION ON THE MERITS IS (OR REMAINS) CLOSED in this application. If not included herewith (or previously mailed), a Notice of Allowance (PTOL-85) or other appropriate communication will be mailed in due course. **THIS NOTICE OF ALLOWABILITY IS NOT A GRANT OF PATENT RIGHTS.** This application is subject to withdrawal from issue at the initiative of the Office or upon petition by the applicant. See 37 CFR 1.313 and MPEP 1308.

1. ☒ This communication is responsive to 12 July 2004.
2. ☒ The allowed claim(s) is/are 74, 75, 80, 83, 93, 99, 111, 117, 118, 123, 126, 136, 142, 154, 160, 166 and 167.
3. ☒ The drawings filed on 08 July 2003 are accepted by the Examiner.
4. ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
 - a) ☒ All b) ☐ Some* c) ☐ None of the:
 1. ☐ Certified copies of the priority documents have been received.
 2. ☒ Certified copies of the priority documents have been received in Application No. 09/361,856.
 3. ☐ Copies of the certified copies of the priority documents have been received in this national stage application from the International Bureau (PCT Rule 17.2(a)).

* Certified copies not received: _____.

Applicant has THREE MONTHS FROM THE "MAILING DATE" of this communication to file a reply complying with the requirements noted below. Failure to timely comply will result in ABANDONMENT of this application.

THIS THREE-MONTH PERIOD IS NOT EXTENDABLE.

5. ☐ A SUBSTITUTE OATH OR DECLARATION must be submitted. Note the attached EXAMINER'S AMENDMENT or NOTICE OF INFORMAL PATENT APPLICATION (PTO-152) which gives reason(s) why the oath or declaration is deficient.
6. ☐ CORRECTED DRAWINGS (as "replacement sheets") must be submitted.
 - (a) ☐ including changes required by the Notice of Draftsperson's Patent Drawing Review (PTO-948) attached
 - 1) ☐ hereto or 2) ☐ to Paper No./Mail Date _____.
 - (b) ☐ including changes required by the attached Examiner's Amendment / Comment or in the Office action of Paper No./Mail Date _____.

Identifying indicia such as the application number (see 37 CFR 1.84(c)) should be written on the drawings in the front (not the back) of each sheet. Replacement sheet(s) should be labeled as such in the header according to 37 CFR 1.121(d).
7. ☐ DEPOSIT OF and/or INFORMATION about the deposit of BIOLOGICAL MATERIAL must be submitted. Note the attached Examiner's comment regarding REQUIREMENT FOR THE DEPOSIT OF BIOLOGICAL MATERIAL.

Attachment(s)

1. ☐ Notice of References Cited (PTO-892)
2. ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3. ☒ Information Disclosure Statements (PTO-1449 or PTO/SB/08),
Paper No./Mail Date 7/12/04
4. ☐ Examiner's Comment Regarding Requirement for Deposit
of Biological Material
5. ☐ Notice of Informal Patent Application (PTO-152)
6. ☐ Interview Summary (PTO-413),
Paper No./Mail Date _____.
7. ☒ Examiner's Amendment/Comment
8. ☒ Examiner's Statement of Reasons for Allowance
9. ☐ Other _____.

EXAMINER'S AMENDMENT

1. An examiner's amendment to the record appears below. Should the changes and/or additions be unacceptable to applicant, an amendment may be filed as provided by 37 CFR 1.312. To ensure consideration of such an amendment, it **MUST** be submitted no later than the payment of the issue fee.

Authorization for this examiner's amendment was given in a telephone interview with Guy R. Gosnell, Reg. No. 34,610, on 30 August 2004.

The application has been amended as follows:

In the Abstract:

The abstract has been replaced with the following:

An optical device and a display apparatus of the present invention are constructed so as to improve display characteristics of output light intensity, display contrast, and reduction of scattered light due to external light, and also to provide a large-screen. The optical device has a first stacked body and a plurality of second stacked bodies. The first stacked body includes a light guide, a first electrode, and an optical control layer. The second stacked body includes a plurality of second electrodes, the reflection film and a substrate. There is an optical control layer which changes in scattering degree or diffraction efficiency by an electric field applied by said first electrode and said second electrode.

In the Specification:

On page 1, lines 1-2, "U.S. Patent Application No. 09/361,856 filed July 27, 1999" has been replaced with --U.S. Patent Application No. 09/361,856 filed July 27, 1999, now U.S. Patent No. 6,618,104--.

End of examiner's amendment.

Allowable Subject Matter

2. Claims 74, 75, 80, 83, 93, 99, 111, 117, 118, 123, 126, 136, 142, 154, 160, 166, and 167 are allowed.

3. The following is an examiner's statement of reasons for allowance:

The prior art does not disclose the device of claims 166 and 167 (previously claims 105 and 148, now written in independent form), in particular the limitation that the optical control layer comprises holographic polymer dispersed liquid crystal having a structure periodically distributed in the form of a diffraction grating. Claims 166 and 167 are therefore allowed.

The prior art does not disclose the devices of claims 74 and 117, in particular the amended limitation that the optical control layer changes in diffraction efficiency (rather than in scattering degree as in *Bergman*) by an electric field applied to the first and second electrode, in combination with the limitations of a light transmissive plate-shaped light guide with an optical control layer on its lower surface and a reflection film on a lower surface of the optical control layer. The nearest prior art is discussed below.

Claims 74 and 117 are therefore allowed, as are their dependent claims 75, 80, 83, 93, 99, 111, 118, 123, 126, 136, 142, 154, and 160.

Any comments considered necessary by applicant must be submitted no later than the payment of the issue fee and, to avoid processing delays, should preferably accompany the issue fee. Such submissions should be clearly labeled "Comments on Statement of Reasons for Allowance."

Conclusion

4. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

U.S. Patent No. 6,091,463 to *Robinson et al.* (made of record by the applicant) discloses an optical device with an optical control layer, where first and second electrodes apply an electric field to the optical control layer to change its diffraction efficiency, but does not disclose a plate-shaped light guide as recited by the claims. While such light guides are well-known (see subclass 349/63) for providing light to a (reflective-type) direct-view LCD, there is no teaching in the prior to use such a light guide with a diffractive spatial light modulator as disclosed by *Robinson*, which is used as part of a projection LCD system.

U.S. Patent No. 5,731,853 to *Taketomi et al.* (made of record by the applicant) discloses a display device using light diffraction (see abstract), which either uses a light guide as recited or is at least appropriate for such a light guide (see Fig. 8B). However,

Art Unit: 2871

Taketomi does not disclose the other structure recited by the present claims, in particular the reflection film between the optical control layer and the second electrode. Since the reflected light [21, 22] in *Taketomi* is apparently redirected by diffraction from the optical control layer in *Taketomi*, there does not appear to be any motivation in the prior art to provide the reflection film as recited in the present claims.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew Schechter whose telephone number is (571) 272-2302. The examiner can normally be reached on Monday - Friday, 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert H. Kim can be reached on (571) 272-2293. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

AS
Andrew Schechter
30 August 2004


TARIFUR R. CHOWDHURY
PRIMARY EXAMINER